Emergent Structures in Dissipative Wave-Particle Systems[1]

DAVIT SIVIL, ALFRED HUBLER, Center for Complex Systems Research, Department of Physics, University of Illinois at Urbana-Champaign — We study the motion of a particle with mass m on a vibrated string of length L. We assume there is no friction force between the particle and the string. The string is sinusoidally forced at both ends. We find that the particle has attractors located at x=L/2 - $n\pi c/2\omega$, where ω is the frequency of the waves on the string, and $n \in Z$. We also study the same system with friction and multiple driving frequencies. We also compared our results with numerical simulations

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